# Data Structures and Algorithms

# Assignment 9

Please complete all parts of the question described below. This assignment forms part of the assessment for this module and you must upload your solution in the given file on or before the date given on Moodle.

**Question 1**

In the file Assignment9\_2017.java add code that creates a BinarySearchTree of Word values, where a Word is defined as a non-blank string. The tree should be constructed with a list of 20 words of your choice. Your code should provide a test platform for the methods in the class BinarySearchTree. In particular you must test add, remove, preOrder, inOrder, postOrder, height and contains.

The class Word is defined in the java file.

(Note: you may not amend the BinarySearchTree class when doing this.)

**Question 2**

Write the following methods for the BinarySearchTree<E> class discussed in the lecture notes.

|  |  |
| --- | --- |
| public E maxElement() | Returns the largest element in the tree. |
| public ArrayList<E> leafNodes() | Returns an ArrayList containing the leaf nodes in the tree. A leaf node is one whose left and right children are null |
| Public List<E> get(Predicate<E> pr) | Retrieve a list that satisfies pr. |